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EXAMINER

AL I. M.

ART UNIT

PAPER NUMBER

2177

DATE MAILED:

07/03/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

## Office Action Summary

Application No.

09/255,352

Applicant(s)

TANAKA, SUMIYO

Examiner

Mohammad Ali

Art Unit

2177

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 February 1999.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14, 17-24 and 27-30 is/are rejected.
- 7) ☐ Claim(s) 15, 16, 25 and 26 is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

### Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1 The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

2. Claims 1-14, 17-24, and 27-30 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent 6,246,804 B1 issued to Sato et al. ("Sato").

3. With respect to claim 1, Sato teaches, an image database storing a plurality of database images (col. 27 lines 20-55) to be searched for (Abstract, col. 1 lines 7-67);  
a specifying controller (col. 5 lines 32-67) for specifying a plurality of key images used to specify search conditions (Abstract, col. 1 lines 7-67);  
an extracting controller (col. 2 lines 13-22) for extracting common feature values of common images from the plural key images specified by the specifying controller (Abstract, col. 1 lines 7 to col. 2 lines 53);  
a calculating (col. 1 lines 27-43) controller for comparing the common feature values, extracted by the extracting controller, with the feature values of the plural database images to thereby sequentially (col. 1 lines 15-37) calculate similarities between the common feature values and the database image (col. 27 lines 32-67) feature values (col. 1 lines 15-col. 2 lines 53, col. 18 lines 55 to col. 19 lines 7); and  
a searching controller (col. 5 lines 32-67) for retrieving (col. 1 lines 7-67) from the database images one of the images which is similar to the key image, based on a similarity calculated by the calculating controller (col. 21 lines 28 to col. 22 lines 13, Fig. 31-32).

4. As to claim 2, an extracting means for extracting a plurality (col. 2 lines 13-17) of types of the feature quantities from the respective key images specified by the specifying controller (Abstract, col. 1 lines 7 col. 2 lines 53);

a selecting means for comparing the feature quantities, extracted by the extracting means, among the plural key images specified by the specifying controller to thereby select at least one of the types of the feature quantities (Abstract, col. 27 lines 20-40); and

a determining means for determining the common feature quantities based on the at least one type of the features quantities selected by the selecting means (Abstract, col. 1 lines 7 to col. 2 lines 53).

5. As to claim 3, the means is operable to compare the feature of the same types among the plural key images by the specifying controller and wherein the determining means is operable to calculate an average value of the feature quantities of the plural key image with respect to the types of the feature quantities selected by the selecting means, to thereby determine the calculated average value as representing the common feature quantities (col. 27 lines 20-55, col. 5 lines 32-67, col. 27 lines 20-53, Abstract).

6. With respect to claim 4, Sato teaches, an image database storing (col. 27 lines 20-55) a plurality of database images to be searched for (Abstract, col. 1 lines 7-67);

a specifying controller (col. 5 lines 32-67) for specifying a plurality of key images used to specify search conditions (Abstract, col. 1 lines 7-67);

a calculating controller for comparing the plural images, specified by the specifying controller, with the plural database images (col. 27 lines 20-57) to thereby calculate similarities selecting quantities specified between the common feature values and the database image feature values (col. 1 lines 7 to col. 2 lines 53);

a selecting controller for retrieving a particular key image from the specified images based on the similarities calculated by the calculating controller; and

a searching controller for retrieving the images from the database images based on the similarity (col. 18 lines 55 to col. 19 lines 7) between the key image, selected by the selecting controller (col. 5 lines 32-67), and the database images (col. 27 lines 20-55, col. 1 lines 7-67).

7. As to claim 5, the selecting controller is operable (col. 5 lines 32-67) to select as a particular one of the plural specified key images, the key images which most resemble to the database images being searched for (col. 1 lines 7- col. 2 lines 53).

8. As to claim 6, the calculating controller is operable to calculate a plurality of types of the feature quantities from the plural key images and then to calculate a degree of similarity (col. 18 lines 55 to col. 19 lines 7) by comparing the feature quantities with the database images (col. 27 lines 20-55) for each type, and wherein the selecting controller selects, as the particular key image from the plural specified images, the key images which most resemble to the database images being searched with respect to an average value of degrees of similarities calculated by the calculating means for each type of the feature quantities (col. 1 lines 7 to col. 2 lines 53, col. 5 lines 32-67).

9. With respect to claim 7, Sato teaches, an image database storing a plurality of database images (col. 27 lines 20-55) to be searched for (Abstract, col. 1 lines 7-67);

a specifying controller (col. 5 lines 32-67) for specifying a plurality of key images used to specify search conditions (col. 1 lines 7-67, Abstract);

a first calculating controller (col. 5 lines 32-67) for comparing all of the key images, specified by the specifying controller, with respective feature values of the database images to thereby calculate similarities there between (col. 1 lines 7 to col. 2 lines 53, Abstract);

a second calculating controller (col. 5 lines 32-67) for selecting a particular key image from the plural key images specified by the specifying controller and for comparing the particular key image with the database images to thereby calculate similarities there between (col. 1 lines 7 col. 2 lines 53, Abstract);

a third calculating controller for calculating a final similarity for use in searching based on the similarities calculated respectively by the first and second calculating controllers (col. 5 lines 32-67, col. 1 lines 7 to col. 2 lines 53, A); and

a searching controller for retrieving one of the database images (col. 27 lines 20-67), which is similar to the particular key image, based on the final similarity calculated by the third calculating controller (col. 1 lines 7 to col. 2 lines 53, col. 5 lines 32-67)).

10. As to claim 8, the third calculating controller is operable (col. 5 lines 32-67) to increase a weight of the degree of similarity, calculated by the first calculating controller, to a value greater than that of the degree of similarity, calculated by the second calculating controller, to thereby calculate the final degree of similarity (col. 18 lines 55 to col. 19 lines 7, col. 1 lines 7 to col. 2 lines 43)).

11. As to claim 9, the first calculating controller (col. 5 lines 32-67) is operable to extract the common feature quantities of the image common to all of the key images, and to compare those common feature quantities with the database image to thereby calculate the degree of similarity (col. 18 lines 55 to col. 19 lines 7, col. 1 lines 7-67, Abstract).

12. As to claim 10, the second calculating controller is operable (col. 5 lines 32-67) to select the key images most similar to the database image (col. 27 lines 20-67) from the key images and to calculate the degree of similarity (col. 18 lines 55 to col. 19 lines 7, Abstract).

13. With respect to claim 11, Sato teaches, storing a plurality of database images (col. 27 lines 20-55) to be searched for in a database (Abstract, col. 1 lines 7-67);  
specifying a plurality of key images used to specify search conditions by means of a specifying controller (col. 5 lines 32-67, col. 1 lines 7-67);  
extracting by means of an extracting controller (col. 2 lines 13-22), common feature values of common images from the plural key images specified by the specifying controller (col. 5 lines 32-67, col. 1 lines 15 col. 2 lines 43);  
comparing by means of a calculating controller (col. 5 lines 32-67), the common feature values, extracted by the extracting controller, with the feature values of the plural database images to thereby sequentially calculate similarities between the common feature values and the database image feature values (col. 18 lines 55 to col. 19 lines 7, col. 1 lines 7 to col. 2 lines 43); and  
retrieving from the database images one of the images which is similar to the key image, based on a similarity calculated by the calculating controller, by means of a searching controller (col. 1 lines 7 to col. 2 lines 43, col. 5 lines 32-67, Abstract).

14. As to claim 12, the extracting step includes the sub-steps of extracting a plurality of types of the feature quantities from the respective key images specified by the specifying controller (col. 5 lines 32-67);

comparing by means of a selecting means the feature quantities, extracted by the extracting sub-step, among the plural key images specified by the specifying controller to thereby select at least one of the types of the feature quantities (col. 1 lines 7 col. 2 lines 53, Abstract); and determining the common feature quantities based on the at least one type of the features quantities selected by the selecting means (col. 18 lines 55 to col. 19 lines 7).

15. As to claim 13, the selecting means is operable (col. 5 lines 32-67) to compare the feature quantities of the same types among the plural key images specified by the specifying controller and wherein the determining means is operable to calculate an average value of the feature quantities of the plural key image with respect to the types of the feature quantities selected by the selecting means, to thereby determine the calculated average value as representing the common feature quantities (col. 1 lines 7 to col. 2 lines 43, Abstract);

16. With respect to claim 14, Sato teaches, storing a plurality of database images (col. 27 lines 20-55) to be searched for in an image database (Abstract, col. 1 lines 7-67);

specifying a plurality of key images used to specify search conditions by means of a specifying controller (col. 5 lines 32-67, col. 1 lines 7-67);

comparing by means of a calculating controller, the plural images, specified by the specifying controller, with the plural database images (col. 27 lines 20-55) to thereby calculate similarities between the common feature values (col. 18 lines 55 to col. 19 lines 7) and the database image feature values (col. 1 lines 7 col. 2 lines 43, Abstract);

retrieving a particular key image from the specified images based on the similarities calculated by the calculating controller, by means of a selecting controller (5 lines 32-67, col. 27 lines 20-55, col. 1 lines 7-67); and

retrieving the images from the database images based (col. 27 lines 20-57) on the similarity between the key image, selected by the selecting controller, and the database images, by means of a searching controller (col. 5 lines 32-67, col. 1 lines 7-67).

17. With respect to claim 17, Sato teaches, storing a plurality of database images (col. 27 lines 20-55) to be searched for in an image database (Abstract, col. 1 lines 7-67);

specifying a plurality of key images used to specify search conditions by means of a specifying controller (col. 5 lines 32-67, col. 1 lines 1-67);

comparing all of the key images, specified by the specifying controller, with respective feature values of the database images to thereby calculate similarities there between, by means of a first calculating controller (col. 5 lines 32-67, col. 18 lines 55 to col. 19 lines 7, Abstract);

selecting by means of a second calculating controller, a particular key image from the plural key images specified by the specifying controller and for comparing the particular key image with the database images to thereby calculate similarities there between (Abstract, col. 18 lines 55 to col. 19 lines 7, col. 27 lines 20-55, col. 1 lines 7-67);

calculating, by means of a third calculating controller, a final similarity for use in searching based on the similarities calculated respectively by the first and second calculating controllers (col. 1 lines 7 to col. 2 lines 53); and

retrieving by means of a searching controller (col. 5 lines 32-67), one of the database images, which is similar to the particular key image, based on the final similarity calculated by the third calculating controller (col. 18 lines 55 to col. 19 lines 7, Abstract).

18. As to claim 18, the third calculating controller is operable to increase a weight of the degree of similarity (col. 18 lines 55 to col. 19 lines 7), calculated by the first calculating controller, to a value greater than that of the degree of similarity, calculated by the second calculating controller, to thereby calculate the final degree of similarity (col. 5 lines 32-67, col. 1 lines 7-67).

19. As to claim 19, the first calculating controller is operable to extract the common feature (Abstract) quantities of the image common to all of the key images, and to compare those common feature



quantities with the database image to thereby calculate the degree of similarity (col. 18 lines 55 to col. 19 lines 7, col. 5 lines 32-67).

20. As to claim 20, the second calculating controller is operable (col. 5 lines 32-67) to select the key images most similar to the database image from the key images and to calculate the degree of similarity (col. 1 lines 7 to col. 2 lines 53, col. 27 lines 20-55).

21. With respect to claim 21, Sato teaches, storing a plurality of database images (col. 27 lines 20-55) to be searched for in a database (Abstract, col. 1 lines 7-67); specifying a plurality of key images used to specify search conditions by means of a specifying controller (col. 5 lines 32-67, col. 1 lines 7-67); extracting by means of an extracting controller, common feature values of common images from the plural key images specified by the specifying controller (col. 5 lines 32-67, col. 1 lines 7-67); comparing by means of a calculating controller, the common feature values, extracted by the extracting controller, with the feature values of the plural database images to thereby sequentially calculate similarities between the common feature values and the database image feature values (col. 1 lines 7 to col. 2 lines 43, col. 5 lines 32-67, col. 18 lines 55 to col. 19 lines 7); and retrieving from the database images one of the images which is similar to the key image, based on a similarity calculated by the calculating controller, by means of a searching controller (col. 5 lines 32-67, col. 1 lines 7-67, Abstract).

22. As to claim 22, the extracting controller includes an extracting means for extracting a plurality of types of the feature quantities from the respective key images specified by the specifying controller (col. 5 lines 32-67); a selecting means for comparing the feature quantities, extracted by the extracting sub-step, among the plural key images specified by the specifying controller to thereby select at least one of the types of the feature quantities (col. 1 lines 7-67, Abstract); and a determining means for determining the common feature quantities based on the at least one type of the features quantities selected by the selecting means (col. 18 lines 55 to col. 19 lines 7, Abstract).

23. As to claim 23, the selecting means is operable to compare the feature quantities of the same types among the plural key images specified by the specifying controller and wherein the determining

means is operable to calculate (col. 5 lines 32-67) an average value of the feature quantities of the plural key image with respect to the types of the feature quantities selected by the selecting means, to thereby determine the calculated average value as representing the common feature quantities (col. 18 lines 55 to col. 19 lines 7, Abstract).

24. With respect to claim 24, Sato teaches, storing a plurality of database images (col. 27 lines 20-55) to be searched for in an image database (Abstract, col. 1 lines 7-67);

specifying a plurality of key images used to specify search conditions by means of a specifying controller (col. 5 lines 32-67, col. 1 lines 7-67, Abstract);

comparing by means of a calculating controller (col. 5 lines 32-67), the plural images, specified by the specifying controller, with the plural database images to thereby calculate similarities between the common feature values and the database image feature values (col. 1 lines 7-67, Abstract);

retrieving a particular key image from the specified images based on the similarities calculated by the calculating controller, by means of a selecting controller (col. 18 lines 55 to col. 19 lines 7, col. 1 lines 7-67); and

retrieving the images from the database images based on the similarity between the key image, selected by the selecting controller, and the database images (col. 18 lines 55 to col. 19 lines 7), by means of a searching controller (col. 5 lines 32-67, Abstract).

25. With respect to claim 27, Sato teaches, storing a plurality of database images (col. 27 lines 20-55) to be searched for in an image database (col. 1 lines 7-67, Abstract);

specifying a plurality of key images used to specify search conditions by means of a specifying controller (col. 5 lines 32-67);

comparing all of the key images, specified by the specifying controller, with respective feature values of the database images to thereby calculate similarities there between, by means of a first calculating controller (col. 5 lines 32-67, col. 1 lines 7-67);

selecting by means of a second calculating controller, a particular key image from the plural key images specified by the specifying controller and for comparing the particular key image with the database images to thereby calculate similarities there between (col. 18 lines 55 to col. 19 lines 7, col. 1 lines 7-67);

calculating, by means of a third calculating image searching program, said program controller, a final similarity for use in searching based on the similarities calculated respectively by the first and second calculating controllers (col. 1 lines 7 col. 2 lines 43, col. 5 lines 32-67); and  
retrieving by means of a searching controller, one of the database images, which is similar to the particular key image, based on the final similarity calculated by the third calculating controller (col. 1 lines 7-67, col. 5 lines 32-67, col. 27 lines 20-55, Abstract).

26. As to claim 28, the third calculating controller is operable to increase a weight of the degree of similarity, calculated by the first calculating controller, to a value greater than that of the degree of similarity, calculated by the second calculating controller, to thereby calculate the final degree of similarity (col. 18 lines 55-67, Abstract, col. 1 lines 7-67).

27. As to claim 29, the first calculating controller is operable to extract the common feature quantities of the image common to all of the key images, and to compare those common feature quantities with the database image to thereby calculate the degree of similarity (col. 18 lines 55 to col. 19 lines 7, col. 1 lines 7 to col. 2 lines 43).

28. As to claim 30, the second calculating controller (col. 5 lines 32-67) is operable to select the key images most similar to the database image from the key images and to calculate the degree of similarity (col. 18 lines 55 to col. 19 lines 7, col. 1 lines 7 to col. 2 lines 43).

### ***Allowable Subject Matter***

29. Claims 15-16 and 25-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent from including all of the limitations of the base claim and any intervening claims.


***Conclusion***

30. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad Ali whose telephone number is (703) 605-4356. The examiner can normally be reached on Monday to Thursday from 7:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (703) 305-9790. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-9051 for regular communications and (703) 305-9724 or (703) 308-6606 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-9600.

Mohammad Ali  
Patent Examiner  
June 28, 2001

  
JOHN BREENE  
SUPERVISORY PATENT EXAMINER  
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